What is claimed is:

1. A semiconductor chip comprising:

a semiconductor substrate;

an integrated circuit, at least a part of the integrated circuit being formed in the semiconductor substrate;

a penetrating electrode which is formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and has a projection which projects from the second surface; and

an insulating layer formed on the second surface except a part of the second surface, and in a region around the projection.

2. The semiconductor chip as defined in claim 1, wherein the insulating layer is formed so that a thickness of the insulating layer decreases as a distance from the projection increases.

3. The semiconductor chip as defined in claim 1, wherein the projection is formed to have a height higher than a height of a thickest area of the insulating layer.

4. The semiconductor chip as defined in claim 1, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

5. A semiconductor chip comprising:

a semiconductor substrate;

an integrated circuit, at least a part of the integrated circuit being formed in the semiconductor substrate;

a penetrating electrode which is formed through the semiconductor substrate from

a first surface to a second surface of the semiconductor substrate and has a projection which projects from the second surface;

an insulating layer formed over an entire surface of the second surface,

wherein the insulating layer includes a first insulating section formed in a region around the projection and a second insulating section other than the first insulating section, and

wherein the second insulating section is formed to be thinner than a thickest area of the first insulating section.

6. The semiconductor chip as defined in claim 5, wherein the first insulating section is formed so that a thickness of the first insulating section decreases as a distance from the projection increases.

7. The semiconductor chip as defined in claim 5, wherein the projection is formed to have a height higher than a height of a thickest area of the insulating layer.

8. The semiconductor chip as defined in claim 5, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

9. A semiconductor chip comprising:

a semiconductor substrate;

an integrated circuit, at least a part of the integrated circuit being formed in the semiconductor substrate;

a penetrating electrode which is formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and has a projection which projects from the second surface;

an insulating layer formed on the second surface except a part of the second

surface, and in a region around the projection,

wherein the semiconductor substrate is formed so that the second surface rises higher in the region around the projection than in a region other than the region around the projection.

10. The semiconductor chip as defined in claim 9, wherein the projection is formed to have a height higher than a height of a thickest area of the insulating layer.

11. The semiconductor chip as defined in claim 9, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

12. A semiconductor chip comprising:

a semiconductor substrate;

an integrated circuit, at least a part of the integrated circuit being formed in the semiconductor substrate;

a penetrating electrode which is formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and has a projection which projects from the second surface;

an insulating layer formed over an entire surface of the second surface,

wherein the semiconductor substrate is formed so that the second surface rises higher in a region around the projection than in a region other than the region around the projection, and

wherein the insulating layer is formed so that a surface of the insulating layer rises higher in the region around the projection than in the region other than the region around the projection.

13. The semiconductor chip as defined in claim 12, wherein the projection is

formed to have a height higher than a height of a thickest area of the insulating layer.

14. The semiconductor chip as defined in claim 12, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

15. A semiconductor wafer comprising:

a semiconductor substrate;

a plurality of integrated circuits, at least a part of each of the integrated circuits being formed in the semiconductor substrate;

a plurality of penetrating electrodes, each of the penetrating electrodes being formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

a plurality of insulating layers, each of the insulating layers being formed on the second surface except a part of the second surface, and in a region around the projection.

16. The semiconductor wafer as defined in claim 15, wherein each of the insulating layers is formed so that a thickness of each of the insulating layers decreases as a distance from the projection increases.

17. The semiconductor wafer as defined in claim 15, wherein each of the projections is formed to have a height higher than a height of a thickest area of each of the insulating layers.

18. The semiconductor wafer as defined in claim 15, wherein each of the projections is formed to have a height equal to a height of a thickest area of each of the insulating layers.

19. A semiconductor wafer comprising:

a semiconductor substrate;

a plurality of integrated circuits, at least a part of each of the integrated circuits being formed in the semiconductor substrate;

a plurality of penetrating electrodes, each of the penetrating electrodes being formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and having a projection which projects from the second surface;

an insulating layer formed over an entire surface of the second surface,

wherein the insulating layer includes a plurality of first insulating sections and a second insulating section other than the first insulating sections, each of the first insulating sections being formed in a region around the projection, and

wherein the second insulating section is formed to be thinner than a thickest area of each of the first insulating sections.

20. The semiconductor wafer as defined in claim 19, wherein each of the first insulating sections is formed so that a thickness of each of the first insulating sections decreases as a distance from the projection increases.

21. The semiconductor wafer as defined in claim 19, wherein the projection is formed to have a height higher than a height of a thickest area of the insulating layer.

22. The semiconductor wafer as defined in claim 19, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

23. A semiconductor wafer comprising:

a semiconductor substrate;

a plurality of integrated circuits, at least a part of each of the integrated circuits being formed in the semiconductor substrate;

a plurality of penetrating electrodes, each of the penetrating electrodes being formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

a plurality of insulating layers, each of the insulating layers being formed on the second surface except a part of the second surface, and in a region around the projection,

wherein the semiconductor substrate is formed so that the second surface rises higher in the region around the projection than in a region other than the region around the projection.

24. The semiconductor wafer as defined in claim 23, wherein each of the projections is formed to have a height higher than a height of a thickest area of each of the insulating layers.

25. The semiconductor wafer as defined in claim 23, wherein each of the projections is formed to have a height equal to a height of a thickest area of each of the insulating layers.

26. A semiconductor wafer comprising:

a semiconductor substrate;

a plurality of integrated circuits, at least a part of each of the integrated circuits being formed in the semiconductor substrate;

a plurality of penetrating electrodes, each of the penetrating electrodes being formed through the semiconductor substrate from a first surface to a second surface of the semiconductor substrate and having a projection which projects from the second surface;

an insulating layer formed over an entire surface of the second surface,

wherein the semiconductor substrate is formed so that the second surface rises higher in a region around the projection than in a region other than the region around the projection, and

wherein the insulating layer is formed so that a surface of the insulating layer rises higher in the region around the projection than in the region other than the region around the projection.

27. The semiconductor wafer as defined in claim 26, wherein the projection is formed to have a height higher than a height of a thickest area of the insulating layer.

28 The semiconductor wafer as defined in claim 26, wherein the projection is formed to have a height equal to a height of a thickest area of the insulating layer.

29. A semiconductor device comprising:

a plurality of the semiconductor chips as defined in claim 1, the semiconductor chips being stacked,

wherein two adjacent semiconductor chips among the stacked semiconductor chips are electrically connected through the penetrating electrodes.

30. A semiconductor device comprising:

a plurality of the semiconductor chips as defined in claim 5, the semiconductor chips being stacked,

wherein two adjacent semiconductor chips among the stacked semiconductor chips are electrically connected through the penetrating electrodes.

31. A semiconductor device comprising:

a plurality of the semiconductor chips as defined in claim 9, the semiconductor chips being stacked,

wherein two adjacent semiconductor chips among the stacked semiconductor chips are electrically connected through the penetrating electrodes.

32. A semiconductor device comprising:

a plurality of the semiconductor chips as defined in claim 12, the semiconductor chips being stacked,

wherein two adjacent semiconductor chips among the stacked semiconductor chips are electrically connected through the penetrating electrodes.

33. A circuit board on which the semiconductor chip as defined in claim 1 is mounted.

34. A circuit board on which the semiconductor chip as defined in claim 5 is mounted.

35. A circuit board on which the semiconductor chip as defined in claim 9 is mounted.

36. A circuit board on which the semiconductor chip as defined in claim 12 is mounted.

37. A circuit board on which the semiconductor device as defined in claim 29 is mounted.

38. A circuit board on which the semiconductor device as defined in claim 30 is

mounted.

39. A circuit board on which the semiconductor device as defined in claim 31 is mounted.

40. A circuit board on which the semiconductor device as defined in claim 32 is mounted.

41. An electronic instrument comprising the semiconductor chip as defined in claim 1.

42. An electronic instrument comprising the semiconductor chip as defined in claim 5.

43. An electronic instrument comprising the semiconductor chip as defined in claim 9.

44. An electronic instrument comprising the semiconductor chip as defined in claim 12.

45. An electronic instrument comprising the semiconductor device as defined in claim 29.

46. An electronic instrument comprising the semiconductor device as defined in claim 30.

47. An electronic instrument comprising the semiconductor device as defined in

claim 31.

48. An electronic instrument comprising the semiconductor device as defined in claim 32.

49. A method of manufacturing a semiconductor device comprising:

(a) forming a penetrating electrode in a semiconductor substrate in which at least a part of an integrated circuit is formed, the penetrating electrode being formed through the semiconductor substrate from a first surface and a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

(b) forming an insulating layer on the second surface except a part of the second surface, and in a region around the projection.

50. The method of manufacturing a semiconductor device as defined in claim 49, wherein the insulating layer is formed so that a thickness of the insulating layer decreases as a distance from the projection increases.

51. The method of manufacturing a semiconductor device as defined in claim 49, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is lower than a height of the projection.

52. The method of manufacturing a semiconductor device as defined in claim 49, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is equal to a height of the projection.

53. The method of manufacturing a semiconductor device as defined in claim 49, further comprising:

forming a plurality of the integrated circuits in the semiconductor substrate, and forming the penetrating electrode for each of the integrated circuits; and

cutting the semiconductor substrate.

54. The method of manufacturing a semiconductor device as defined in claim 49, further comprising:

stacking a plurality of the semiconductor substrates for which the steps (a) and (b) have been implemented; and

electrically connecting two adjacent semiconductor substrates among the stacked semiconductor substrates through the penetrating electrodes.

55. A method of manufacturing a semiconductor device comprising:

(a) forming a penetrating electrode in a semiconductor substrate in which at least a part of an integrated circuit is formed, the penetrating electrode being formed through the semiconductor substrate from a first surface and a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

(b) forming an insulating layer over an entire surface of the second surface so that the insulating layer includes a first insulating section formed in a region around the projection and a second insulating section other than the first insulating section, and the second insulating section is thinner than a thickest area of the first insulating section.

56. The method of manufacturing a semiconductor device as defined in claim 55, wherein the first insulating section is formed so that a thickness of the first insulating section decreases as a distance from the projection increases.

57. The method of manufacturing a semiconductor device as defined in claim 55, wherein the insulating layer is formed so that a height of a thickest area of the insulating

layer is lower than a height of the projection.

58. The method of manufacturing a semiconductor device as defined in claim 55, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is equal to a height of the projection.

59. The method of manufacturing a semiconductor device as defined in claim 55, comprising:

forming a plurality of the integrated circuits in the semiconductor substrate, and forming the penetrating electrode for each of the integrated circuits; and

cutting the semiconductor substrate.

60 The method of manufacturing a semiconductor device as defined in claim 55, comprising:

stacking a plurality of the semiconductor substrates for which the steps (a) and (b) have been implemented; and

electrically connecting two adjacent semiconductor substrates among the stacked semiconductor substrates through the penetrating electrodes.

61. A method of manufacturing a semiconductor device comprising:

(a) forming a penetrating electrode in a semiconductor substrate in which at least a part of an integrated circuit is formed, the penetrating electrode being formed through the semiconductor substrate from a first surface and a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

(b) forming an insulating layer on the second surface except a part of the second surface, and in a region around the projection,

wherein the semiconductor substrate is formed so that the second surface rises

higher in the region around the projection than in a region other than the region around the projection.

62. The method of manufacturing a semiconductor device as defined in claim 61, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is lower than a height of the projection.

63. The method of manufacturing a semiconductor device as defined in claim 61, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is equal to a height of the projection.

64. The method of manufacturing a semiconductor device as defined in claim 61, further comprising:

forming a plurality of the integrated circuits in the semiconductor substrate, and forming the penetrating electrode for each of the integrated circuits; and

cutting the semiconductor substrate.

65. The method of manufacturing a semiconductor device as defined in claim 61, further comprising:

stacking a plurality of the semiconductor substrates for which the steps (a) and (b) have been implemented; and

electrically connecting two adjacent semiconductor substrates among the stacked semiconductor substrates through the penetrating electrodes.

66. A method of manufacturing a semiconductor device comprising:

(a) forming a penetrating electrode in a semiconductor substrate in which at least a part of an integrated circuit is formed, the penetrating electrode being formed through the

semiconductor substrate from a first surface and a second surface of the semiconductor substrate and having a projection which projects from the second surface; and

(b) forming an insulating layer over an entire surface of the second surface,

wherein the semiconductor substrate is formed so that the second surface rises higher in the region around the projection than in a region other than the region around the projection, and

wherein the insulating layer is formed so that a surface of the insulating layer rises higher in the region around the projection than in the region other than the region around the projection.

67. The method of manufacturing a semiconductor device as defined in claim 66, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is lower than a height of the projection.

68. The method of manufacturing a semiconductor device as defined in claim 66, wherein the insulating layer is formed so that a height of a thickest area of the insulating layer is equal to a height of the projection.

69. The method of manufacturing a semiconductor device as defined in claim 66, further comprising:

forming a plurality of the integrated circuits in the semiconductor substrate, and forming the penetrating electrode for each of the integrated circuits; and

cutting the semiconductor substrate.

70. The method of manufacturing a semiconductor device as defined in claim 66, further comprising:

stacking a plurality of the semiconductor substrates for which the steps (a) and (b)

have been implemented; and

electrically connecting two adjacent semiconductor substrates among the stacked semiconductor substrates through the penetrating electrodes.